Les chefs socialistes pendant la guerre. (Paris: Nouvelle Librairie Nationale. 1919. 4.55 fr.)

The replies of the socialist parties of the Central Powers to the "memorandum on war aims." The preliminary draft of a peace programme by a committee of neutral socialists. An open letter on the "new socialist peace conference" from M. P. J. Troelstra to the Right Hon. Arthur Henderson. (London: Labour Party, 33 Eccleston Square. 1919. Pp. 71. 6d.)

Statistics and Its Methods

Disabling Sickness Among the Population of Seven Cotton Mill Villages of South Carolina in Relation to Family Income. By EDGAR SYDENSTRICKER, G. A. WHEELER, JOSEPH GOLDBERGER. Reprint 492 from the United States Public Health Reports, vol. XXXIII. (Washington: Superintendent of Documents. Nov. 22, 1918. Pp. iv, 2031-2091.)

When Thomas R. Malthus published his treatise on population, he gave scientific form to the general belief that poverty and disease are inseparable companions. Since that date, this fact has probably been tacitly accepted by most thinking people; nevertheless, statistical proofs and mathematical measurements of this relationship have been most scanty, and, strangely enough, while everyone has been perfectly ready to admit that the relationship exists, it has in practice been virtually overlooked by many able investigators. Insurance actuaries, for example, have worked out elaborate tables to show the relationship of sickness and mortality to age, sex, and occupation, while ignoring entirely the income status of the individuals studied. This tendency has doubtless been accentuated by the difficulties involved in obtaining reliable information concerning income.

The authors of the pamphlet here reviewed recognized these difficulties fully and made a systematic effort to overcome them which proved completely successful. Family income was estimated by first getting the wages of mill workers from the payrolls and then adding thereto income from other sources as calculated from detailed estimates furnished by each family. But, since families differ greatly in size, total family income was useless as a criterion of welfare. Before it could be utilized, it was essential that the size of the family should be determined and that the total income in each instance should be divided by the relative size of the family. Since persons of different ages and sexes have decidedly different needs for articles of consumption, the mere number of persons in

a family is far from being a satisfactory gauge of the size of the family. As a result, it was decided to rate the size of each family in proportion to the number of "adult male units" that it contained according to the Atwater scale. This scale, while originally computed upon the basis of *food requirements,* is, nevertheless, roughly proportional to the *general needs* of persons of different ages and sexes. The income for each family for a half-month period was divided by the number of adult male units in that family. The families were then classified according to income per adult male unit and the sickness rate calculated for each class. Sickness was defined, not in terms of pain, but as inability to perform one's usual duties. The study covered 4,161 persons in 747 households of cotton mill workers, a number large enough to constitute a reasonably fair sample. It must be kept in mind that none of the families are more than moderately well-to-do and the conclusions, therefore, probably characterize the poorer classes rather than the general population of the United States. The results of the inquiry are most striking, as the following table shows.

CASES OF DISABLING SICKNESS PER THOUSAND PERSONS OCCURRING AT A GIVEN CENSUS
DATE IN THE LATE SPRING OF 1916 IN SEVEN COTTON MILL
VILLAGES OF SOUTH CAROLINA.

Half-month family income per adult male unit	All persons	Wage-earning persons	Non-wage-earning persons
All incomes	45.2	40.2	49.1
Less than $6.00............	70.1	80.0	65.0
$6.00 to $7.99..............	48.2	51.6	45.8
$8.00 to $9.99..............	34.4	18.8	53.1
$10.00 and over............	18.5	14.9	22.5

It thus appears that the sickness rate of the poorest class was approximately four times as great as that of the most prosperous class and that the difference was maintained for both wage-earners and non-wage-earners, though it was somewhat more marked in the case of the former. Supplementary tables in the bulletin show that the same higher rate appears for nearly all of the various ages and sexes and for non-mill workers as well as for mill workers. This proves that the inverse relationship existing between income and sickness is real and not merely apparent.

In collecting the original data, when cases of sickness were found, an inquiry was made as to how long the sick person had

been incapacitated. These figures, when analyzed, show very distinctly that the illnesses among the well-to-do families were normally of much briefer duration than were the illnesses of the poverty stricken.

The authors very wisely caution the reader against assuming that the figures here given prove that poverty is the dominant cause of sickness. As a matter of fact, it is doubtless true that some of the poverty is caused by illness of those supporting the family, resulting in their inability to earn wages. To a larger extent, probably, poverty arises from low earning power, due to low efficiency, and this in turn is a product of a varying mixture of bad heredity, improper nourishment, and lack of education, the last two of which are caused largely by poverty. And so the endless chain moves on!

But this does not at all detract from the value of the facts presented. The investigation appears to demonstrate quite conclusively that, whatever the causal sequence, poverty and disability go hand in hand. It follows, then, if health conditions are so closely bound up with the economic circumstances of the persons under consideration, that conclusions derived from any study of sickness rates which fails to take account of family income must, necessarily, be subject to grave doubts as to their validity.

On the whole, the study furnishes a valuable contribution from the point of view of the economist as well as from that of the scientist interested primarily in questions pertaining to health.

WILLFORD I. KING.

Spartanburg, S. C.

Introduction to Mathematical Statistics. By CARL J. WEST. (Columbus: R. G. Adams and Company. 1918. Pp. 150.)

This attractive book should appeal to every worker who deals with any kind of statistical material. Among its noteworthy features are: a clear exposition of the best methods of plotting data, smoothing curves, and testing goodness of fit, with applications to fluctuations of prices, rainfall, yield of crops, etc.; a careful explanation of the significance of a frequency distribution, and of the various weighted averages, more especially the standard deviation from the mean, and the use of the normal frequency (or probability) curve in various statistical problems; an unusually complete and lucid treatment of the three chief indices for measuring the degree of relationship between two varying characteristics, namely, the correlation ratio, the coefficient of corre-